

## **MDA Horticulture Fund Progress Report Year 1/3**

**1. Project Title:**

**Evaluation of disease and insect resistant elm hybrids and selections  
for the Michigan climate**

**2. Project MDAH #:**

**3. Principal Investigator(s):** Gerard C. Adams, MSU Dept. Plant Pathology

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**4. Reporting period:** FY-05, June 2005-December 2005

**5. Accomplishments during reporting period:**

1. Fourteen of 16 elm cultivars were received from J.F. Schmidt and Son Co). Nursery and five trees of each (70 trees) were planted, positioned using a random numbers table, in late spring 2005 at the MSU Plant Pathology Farm. Ten random spaces remain for two additional cultivars. These are listed below in the table.

A drip irrigation system with two emitters per tree was purchased from Shield's Irrigation to deliver well-water during establishment. The site was characterized for slope, aspect and location. The site has a SE slope measured at 4° and is positioned, using WAAS GPS, at N42°41.236' latitude, W084°28.274' longitude. Soil type is Capac loam edged with Riddley-Hillsdale sandy loam. The field had been fallow since 1999. Weed control was by mowing except one application of herbicide to create a weed barrier around each tree of Roundup at 2qt/acre and Surflan for residual at 1qt/acre.

By autumn, it was determined that the 5 trees of 'Emer II Allen' had arrived dead. Three trees of 'Morton Glossy' Triumph' died during establishment. Replacement trees were ordered for spring 2006. The site is windy and 2/5 trees of 'Harmony' broke well above the graft union. This cultivar was determined to have brittle wood. To establish trees with straight orientation two conduit pipes were positioned around each tree and plastic tree tape used for support trunks. Trunks were protected with 4 ft guards to prevent sunscald, deer and winter rabbit damage. Poison bait was used to protect trees from winter vole damage.

Several cultivars showed very late bud break and records were taken, but due to the stresses of establishment, bud break data will not be considered relevant until summer of 2006. Heavy Japanese Beetle attack affected several cultivars and susceptibility was briefly recorded, then a pesticide treatment was applied to prevent loss of trees with late bud break. Guaranteeing establishment was given higher priority than insect resistance ratings for 2005. Susceptibility to Japanese Beetle will be a primary measurement for 2006. Below are two views documenting establishment of the elm cultivar planting in early autumn 2005.



#	Cultivar	Species*
1	"Clone D"	<i>U. prounqua</i>
2	'Emer II' Allee	<i>U. parvifolia</i>
3	'Frontier'	<i>U. carpinifolia</i> X <i>U. parvifolia</i>
4	'Homestead'	<i>U. glabra</i> X <i>U. carpinifolia</i> X <i>U. pumila</i>
5	'Morton Glossy' Triumph	<i>U. pumila</i> X <i>U. japonica</i> X <i>U. wilsoniana</i>
6	'Morton Plainsman' Vanguard	<i>U. pumila</i> X <i>U. japonica</i>
7	'Morton Red Tip'	<i>U. pumila</i> X <i>U. japonica</i> X <i>U. wilsoniana</i>
8	'Morton Stalwart' Commendation	<i>U. carpinifolia</i> X <i>U. pumila</i> X <i>U. wilsoniana</i>
9	'Morton' Accolade	<i>U. japonica</i> X <i>U. wilsoniana</i>
10	'New Horizon'	<i>U. pumila</i> X <i>U. japonica</i>
11	'Patriot'	<i>U. glabra</i> X <i>U. carpinifolia</i> X <i>U. pumila</i>
12	'Pioneer'	<i>U. glabra</i> X <i>U. carpinifolia</i>
13	'Prospector'	<i>U. wilsoniana</i>
14	'Valley Forge'	<i>U. americana</i>

#### 6. Planned activities for next reporting period:

In 2006, five replacement trees of *U. parvifolia* 'Emer II Allee' and three of *U. pumila* X *U. japonica* X *U. wilsoniana* 'Morton Glossy Triumph' will be planted in early spring. Two additional cultivars, *U. americana* 'Washington' and *U. americana* 'Jefferson' (10 trees) will be randomly planted in the trial. Weed barrier and bark mulch will be applied around each tree. Assessment of tree form and growth will be measured at bud break and at leaf fall. Insect and disease occurrences and damage will be assessed and recorded.

#### 7. Other funding or contributions related to project:

Grant proposals will be written and submitted by spring deadlines to International Society of Arboriculture and the Horticultural Research Institute.

#### 8. Publications/ outreach activities related to project:

An article will be written and submitted to the *Landscaper* or similar Michigan magazine that will introduce the elm cultivar trial to the Michigan nursery industry in 2006. Extension bulletins from Colorado State University that feature photographs and descriptions of Dutch Elm Disease resistant elm cultivars will be purchased and distributed to: 1) interested members of the public during MSU campus field tours in 2006, and 2) 50 MSU students majoring in horticulture and forestry during the PLP/ENT 407 campus course in 2006. Fifty MSU students will be driven to the Elm trial location and will receive a detailed discussion of the trial's purpose, the history of the cultivars, and the current results of performance evaluations. If possible, the MNLA field tours of campus will be directed to the trials for a similar presentation by the PI.